

BIOHACK NOTES



# LOCOMOTION AND MOVEMENT

- BASED ON ACTIVE RECALL AND SPACED REPETITION
- TARGET 360/360 IN NEET BIOLOGY & 100/100 IN BOARDS!



**PARTH** GOYAL

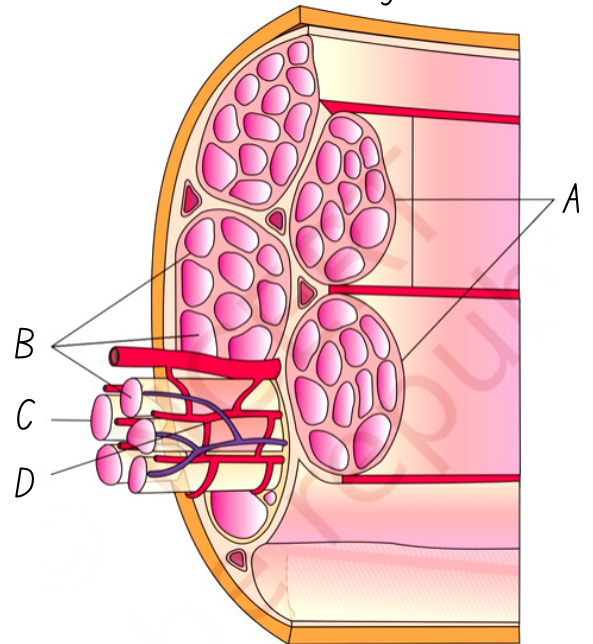




## • INTRODUCTION

1. Streaming of protoplasm in unicellular organism like \_\_\_\_\_ is a simple form of movement.
2. All movements are locomotion. T/F
3. In \_\_\_\_\_, cilia helps in the movement of food through cytopharynx.
4. In paramoecium, cilia doesn't help in locomotion. T/F
5. Hydra uses \_\_\_\_\_ to capture its prey.
6. The 3 types of movement are -
7. Amoeboid movement is exhibited by (2) -
8. Microtubules are involved in amoeboid movement. T/F
9. Ex of ciliary movement in the body - (2)

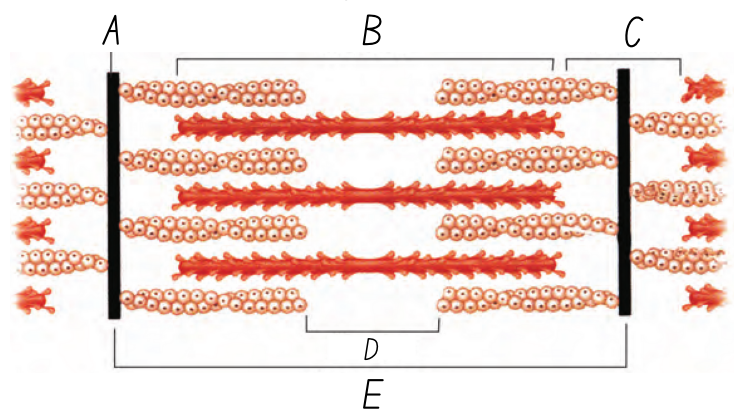
DigaQ. 1



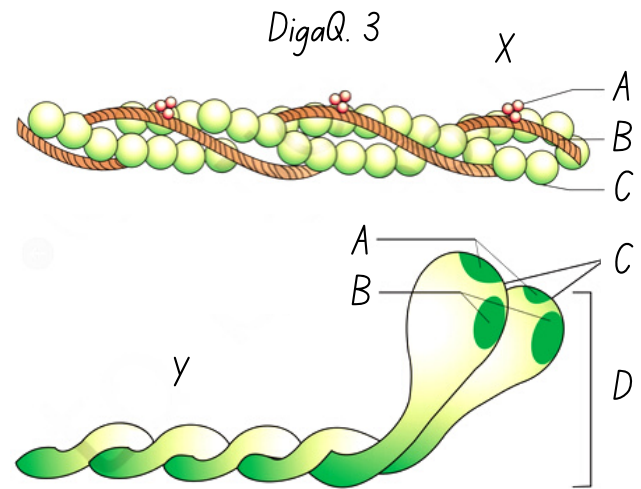
## • MUSCLES

10. Muscles is endo/meso/ectodermal in origin.
11. About \_\_\_\_-\_\_\_\_ % of body weight is contributed by muscles.
12. The 4 special properties of muscles are -
13. Skeletal muscles other 2 names are -
14. Visceral muscles other 3 names are - (NEET)
15. Each skeletal muscle in our body is made of \_\_\_\_\_ or \_\_\_\_\_
16. Fascicles are held together by \_\_\_\_\_ called \_\_\_\_\_
17. Each muscle fibre is lined by \_\_\_\_\_ enclosing the \_\_\_\_\_
18. The sarcoplasmic reticulum is a store house of -
19. Muscle fibre have large no of \_\_\_\_\_ also called \_\_\_\_\_
20. The dark band contains only myosin. T/F
21. The light band is called \_\_\_\_\_ or \_\_\_\_\_
22. Dark band is called \_\_\_\_\_ or \_\_\_\_\_
23. Myosin filaments are thinner than actin filaments. T/F
24. H zone contains actin filament. T/F (NEET)
25. Z line is a elastic fiber which bisect -
26. M line is thick/thin elastic/fibrous and bisect -
27. Functional unit of contraction is - (NEET)
28. Anatomical unit of muscle is -
29. Each actin filament is made of two \_\_\_\_\_ actins helically wound to each other.

DigaQ. 2



30. Each F actin is a polymer of monomeric \_\_\_\_\_
31. A subunit of \_\_\_\_\_ masks the active binding sites for myosin on the actin filaments. (NEET)
32. The 3 parts of meromyosin are -
33. HMM consist of \_\_\_\_\_ and \_\_\_\_\_
34. The \_\_\_\_\_ of meromyosin have an active ATPase enzyme. (NEET)
35. Mechanism of muscle contraction is explained by \_\_\_\_\_ (NEET)
36. \_\_\_\_\_ and \_\_\_\_\_ together constitute the motor unit.
37. A-band retain their length during muscle contraction. T/F
38. In muscles having reddish appearance, \_\_\_\_\_ content is high.
39. Mitochondria is high in red/white fibers.
40. Sarcoplasmic reticulum is high in red/white fibers.
41. \_\_\_\_\_ are called aerobic muscles.



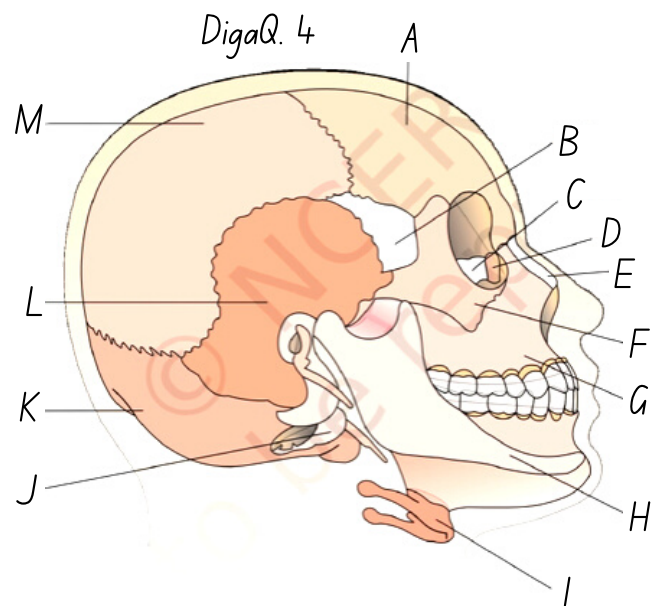
## • SKELETAL SYSTEM

42. Chondroitin salts are present in -
43. No. of bones in human body is -
44. No. of bones in axial skeleton are -
45. It comprises of (4) -
46. The skull consists of a total of \_\_\_\_\_ no. of bones.
47. No. of cranial and facial bones respectively are -
48. Name all the cranial bones.
49. Name all the facial bones.

50. The skull region articulates with vertebral column by \_\_\_\_\_ (NEET)

51. First vertebrae is called \_\_\_\_\_
52. 2nd vertebrae is called \_\_\_\_\_

53. Tell the divisions in the vertebral column and the no of bones in them.
54. Each vertebrae have \_\_\_\_\_ through which the spinal cord passes.
55. The atlas and occipital condyle form a \_\_\_\_\_ joint which help \_\_\_\_\_ movement.
56. The atlas and axis form \_\_\_\_\_ joint which help in \_\_\_\_\_ movement.
57. No bone is \_\_\_\_\_
58. Yes bone is \_\_\_\_\_



**PARTH GOYAL**



59. All mammals have 7 cervical vertebrae except \_\_\_\_\_ which have \_\_\_\_\_ no. of cervical vertebrae.

60. Total no. of ribs humans are -

61. Ribs have two articular surfaces on its ventral/dorsal end hence are called \_\_\_\_\_

62. First \_\_\_\_\_ pair of ribs are true ribs.

63. True ribs are connected to sternum with the help of \_\_\_\_\_ (NEET)

64. What pair of ribs are Vertebrochondral ribs ? (NEET)

65. False ribs are also called \_\_\_\_\_

66. False ribs are joined with the help of \_\_\_\_\_ with the \_\_\_\_\_th rib.

67. What pairs are Floating ribs ? - (NEET)

68. Each limb have \_\_\_\_\_ no of bones.

69. Carpels are \_\_\_\_\_ in no.

70. Tarsals are \_\_\_\_\_ in no.

71. The longest bone in human body is -

72. Each half of the pectoral girdle consist of \_\_\_\_\_ and \_\_\_\_\_

73. Scapula is situated between \_\_\_\_\_ and \_\_\_\_\_ ribs.

74. Scapula have a slightly elevated ridge called \_\_\_\_\_

75. Spine project as a flat expanded process called \_\_\_\_\_

76. Glenoid cavity is present above acromion. T/F

77. Clavicle articulate with \_\_\_\_\_ and \_\_\_\_\_

78. \_\_\_\_\_ articulate with the head of humerus to form shoulder joint. (NEET)

79. \_\_\_\_\_ is called collar bone.

80. Each coxal bone is formed by fusion of (3) -

81. At the point of fusion, a cavity is formed called \_\_\_\_\_

82. Pubic symphysis contains hyaline/fibrous cartilage.

83. The 3 types of joints are -

84. Fibrous joints are present in - (NEET)

85. In it, the bones are connected with the help of \_\_\_\_\_ in the form of \_\_\_\_\_

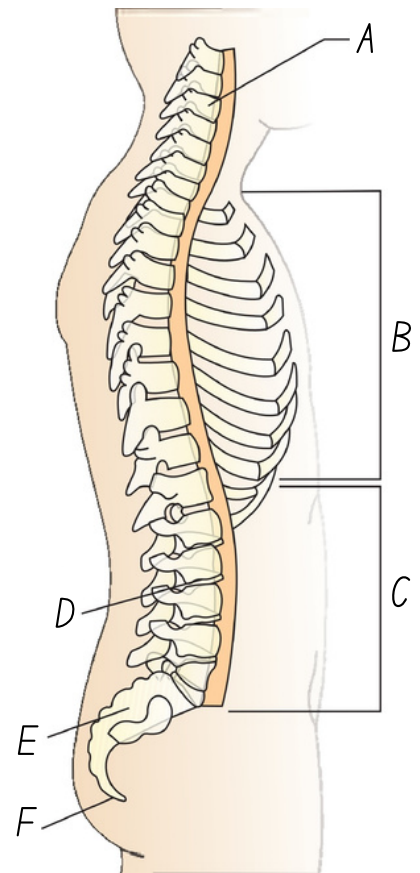
86. Ex of cartilaginous joint - (2) (NEET)

87. Gliding joint ex - (NEET)

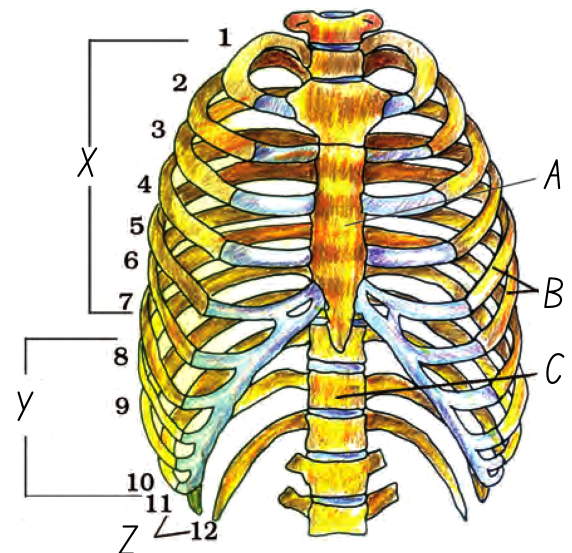
88. Saddle joint ex -

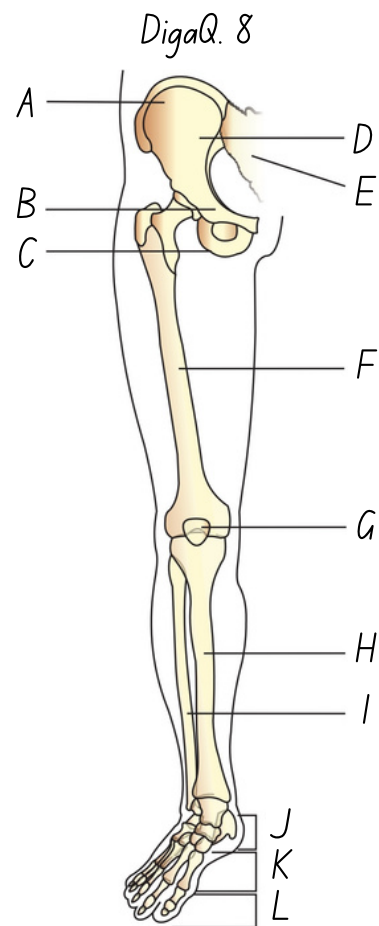
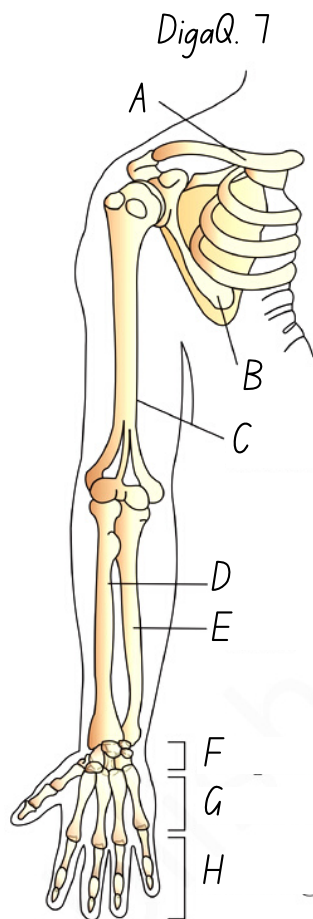
89. Joints between phalanges is a type of \_\_\_\_\_ joint.

DigaQ. 5



DigaQ. 6





## • DISORDERS

90. Autoimmune disorder affecting \_\_\_\_\_ is \_\_\_\_\_ (NEET)
91. Muscular dystrophy is - (NEET)
92. Muscular dystrophy occurs mostly due to - (NEET)
93. Rapid spasm in muscle occurs due to high  $\text{Ca}^{2+}$  in the body fluids. T/F (NEET)
94. What is tetany ? (NEET)
95. What is arthritis ? (NEET)
96. What is the common cause of osteoporosis ? (NEET)
97. Decrease bone mass occur in -
98. What is gout ?



# LOCOMOTION AND MOVEMENT



**PARTH** GOYAL



# ANSWERS

## • INTRODUCTION

1. Amoeba
2. F
3. Paramoecium
4. F
5. Tentacles
6. Amoeboid, ciliary and muscular
7. Macrophages and leucocytes
8. F, microfilaments are involved
9. In trachea for removing dust and in passage of ova through female reproductive tract

## • MUSCLES

10. Mesodermal
11. 40-50
12. excitability, contractility, extensibility and elasticity
13. Striated and voluntary muscle
14. Smooth, Non-striated and involuntary muscle
15. Muscle bundles or fascicles
16. Common collagenous connective tissue layer called fascia
17. Sarcolemma, sarcoplasm
18. Ca
19. Myofilaments or myofibrils
20. F
21. I-band, isotropic band (Trick - LIGHT have I letter at 2<sup>n</sup> position)
22. A-band, anisotropic band (Trick - DARK have A letter at 2<sup>nd</sup> position)
23. F
24. F
25. I band
26. Thin fibrous, A band
27. Sarcomere
28. Muscle fiber (Check NCERT summary)
29. F
30. G - actin

31. Troponin
32. Globular head, short arm, tail
33. Globular head and short arm
34. Globular head
35. Sliding filament theory
36. Motor neuron and the muscles fibers connected to it
37. T
38. Myoglobin
39. Red
40. White
41. Red muscles

## • SKELETAL SYSTEM

42. Cartilage
43. 206
44. 80
45. Skull, vertebral column, ribs sternum
46. 29
47. Cranial - 8, facial bones - 14
48. Parietal (2), Temporal (2), Frontal (1), Occipital (1), Ethmoid (1), Sphenoid (1)
49. Inferior turbinate (2), Lacrimal bones (2), Mandible(1), Maxilla (2), Nasal bones (2), Palatine bones (2), Vomer(1), Zygomatic bones (2)
50. Occipital condyle
51. Atlas
52. Axis
53. Cervical(7), Thoracic(12), Lumbar(5), Sacral(1), Coccyx(1)
54. Neural canal
55. Condylod joint, nodding
56. Pivot joint, rotatory
57. Axis
58. Atlas



**PARTH GOYAL**

59. Two-toed Sloth (*Bradypus*), 9  
60. 24  
61. Dorsal, bicephalic  
62. 7  
63. Hyaline cartilage  
64. 8th, 9th, 10th  
65. Vertebrochondral  
66. Hyaline cartilage, 7th  
67. 11th and 12th  
68. 30  
69. 8  
70. 7  
71. Femur  
72. Scapula and clavicle  
73. 2nd-7th  
74. Spine  
75. Acromion  
76. F, present below acromion  
77. Sternum and acromion  
78. Glenoid cavity  
79. Clavicle  
80. Ilium, ischium, pubis  
81. Acetabulum  
82. Fibrous cartilage  
83. Fibrous, cartilaginous and synovial  
84. Cranium  
85. Dense fibrous connective tissue, sutures  
86. Sternum-ribs and pubic symphysis  
87. Joint between carpals  
88. Between carpals and metacarpals of thumb  
89. Hinge  
• **DISORDERS**  
90. Neuromuscular junction is myasthenia gravis  
91. Progressive degeneration of skeletal muscle  
92. Genetic disorder

93. F  
94. Rapid spasm in muscle occurs due to low  $\text{Ca}^{2+}$  in the body fluids  
95. Inflammation of joints  
96. Decreased level of estrogen  
97. Osteoporosis  
98. Inflammation of joint due to deposition of uric acid crystals

### • DigaQs

DigaQ. 1 - Cross sectional view of a muscle showing muscle bundles & muscle fibres

A - Fascicle (muscle bundle)

B - Muscle fibre (muscle cell)

C - Sarcolemma

D - Blood capillary

DigaQ. 2 - Anatomy of a muscle fibre showing a sarcomere

A - Z line

B - A band

C - I band

D - H zone

E - Sarcomere

DigaQ. 3

X - An actin filament

A - Troponin

B - Tropomyosin

C - F actin

Y - Myosin monomer (Meromyosin)

A - Actin binding sites

B - ATP binding sites

C - Head

D - Cross arm



**PARTH GOYAL**



DigaQ. 4 - Human skull

A - Frontal bone	G - Maxilla
B - Sphenoid bone	H - Mandible
C - Ethmoid bone	I - Hyoid bone
D - Lacrimal bone	J - Occipital condyle
E - Nasal bone	K - Occipital bone
F - Zygomatic bone	L - Temporal bone
	M - Parietal bone

DigaQ. 5 - Vertebral column

A - Cervical vertebra	D - Intervertebral disc
B - Thoracic vertebra	E - Sacrum
C - Lumbar vertebra	F - Coccyx

DigaQ. 6 - Ribs and rib cage

A - Sternum	X - True ribs
B - Ribs	Y - False ribs
C - Vertebral column	Z - Floating ribs

DigaQ. 7 - Right pectoral girdle and upper arm

A - Clavicle	E - Ulna
B - Scapula	F - Carpals
C - Humerus	G - Metacarpals
D - Radius	H - Phalanges

DigaQ. 8 - Right pelvic girdle and lower limb bones

A - Ilium	G - Patella
B - Pubis	H - Tibia
C - Ischium	I - Fibula
D - Coxal bone	J - Tarsals
E - Sacrum	K - Metatarsals
F - Femur	L - Phalanges



SCAN AND DONATE US SO THAT WE CAN  
CREATE MORE SUCH QUALITY CONTENT  
FOR YOU! :)

When you guess an answer in JEE/NEET  
and it turns out to be correct



**PARTH** GOYAL